

CLAIMS

1. A pothole protection mechanism for a lift vehicle including a lifting section supported on a vehicle frame, the pothole protection mechanism comprising:
 - an actuator attached to the lifting section of the lift vehicle, the actuator being displaced between an extended position and a retracted position based on a position of the lifting section;
 - a crank including an engagement member at an upper end positioned to be engaged by the actuator, the crank further including a slot between the upper end and a lower end, wherein a connector secured to the vehicle frame and engaged with the crank through the slot movably secures the crank to the vehicle frame;
 - a coupler link pivotally secured at a first end to the lower end of the crank; and
 - a pothole protection bar pivotally secured to a second end of the coupler link and pivotally secured to the vehicle frame,wherein the vehicle frame, the crank, the connector, the coupler link and the pothole protection bar define a five-bar mechanism for actuation of the pothole protection bar.
2. A pothole protection mechanism according to claim 1, wherein the pothole protection bar is pivoted between a use position and a stowed position via the five-bar mechanism based on the position of the lifting section.
3. A pothole protection mechanism according to claim 1, wherein the actuator comprises:
 - a plate member slidably mounted on a pin rigidly secured to the frame; and
 - a spring mounted on the pin between the frame and the plate member.
4. A pothole protection mechanism according to claim 3, wherein a spring constant of the spring is about 470 lb/in.
5. A pothole protection mechanism according to claim 1, wherein the connector is structurally configured to allow only for translation of the crank with respect to the connector.

6. A pothole protection mechanism according to claim 5, wherein the slot is at a predetermined angle with respect to a longitudinal axis of the crank.
7. A pothole protection mechanism according to claim 6, wherein the slot is offset with respect to the longitudinal axis of the crank.
8. A pothole protection mechanism according to claim 1, wherein the connector is structurally configured only for translation and rotation of the crank with respect to the connector.
9. A pothole protection mechanism according to claim 1, wherein the pothole protection bar is pivoted through an arc substantially limited to 90° between a use position and a stowed position via the five-bar mechanism based on the position of the lifting section.
10. A pothole protection mechanism according to claim 1, further comprising a frame pin coupled to the vehicle frame, the frame pin serving as a stop for the crank.
11. A lift vehicle comprising:
 - a vehicle frame;
 - a lifting section supported on the vehicle frame; and
 - a pothole protection mechanism, the pothole protection mechanism comprising:
 - an actuator attached to the lifting section of the lift vehicle, the actuator being displaced between an extended position and a retracted position based on a position of the lifting section,
 - a crank including an engagement member at an upper end positioned to be engaged by the actuator, the crank further including a slot between the upper end and a lower end, wherein a connector secured to the vehicle frame and engaged with the crank through the slot movably secures the crank to the vehicle frame,
 - a coupler link pivotally secured at a first end to the lower end of the crank,
 - and
 - a pothole protection bar pivotally secured to a second end of the coupler link and pivotally secured to the vehicle frame,

wherein the vehicle frame, the crank, the connector, the coupler link and the pothole protection bar define a five-bar mechanism for actuation of the pothole protection bar.

12. A lift vehicle according to claim 9, wherein the lifting section comprises a scissors lift.

13. A lift vehicle according to claim 11, wherein the actuator comprises:
a plate member slidably mounted on a pin rigidly secured to the frame; and
a spring mounted on the pin between the frame and the plate member.

14. A lift vehicle according to claim 13, wherein a spring constant of the spring is about 470 lb/in.

15. A pothole protection mechanism for a lift vehicle including a lifting section supported on a vehicle frame, the pothole protection mechanism comprising an extendable and retractable pothole protection bar and a five-bar mechanism for actuation of the pothole protection bar based on a position of the lifting section.

16. A pothole protection mechanism for a lift vehicle including a lifting section supported on a vehicle frame, the pothole protection mechanism comprising:
an actuator attached to the lifting section of the lift vehicle, the actuator being displaced between an extended position and a retracted position based on a position of the lifting section;

a crank including an engagement member at an upper end positioned to be engaged by the actuator, the crank further including a slot between the upper end and a lower end, wherein a connector secured to the vehicle frame and engaged with the crank through the slot movably secures the crank to the vehicle frame;

a coupler link pivotally secured at a first end to the lower end of the crank; and
a pothole protection bar pivotally secured to a second end of the coupler link and pivotally secured to the vehicle frame.